



ABSTRACT

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Methods and apparatuses for motion compensation of digital video data with a texture mapping engine. Motion compensation is provided by reconstructing a picture by predicting pixel colors from one or more reference pictures. The prediction can be forward, backward or bi-directional. The architecture provides for reuse of texture mapping hardware components to accomplish motion compensation of digital video data. Bounding boxes and edge tests are modified such that complete macroblocks are processed form motion compensation. Pixel data is written into a texture palette memory according to a first order based on Inverse Discrete Cosine Transform (IDCT) results and read out according to a second order optimized for locality of reference. A texture palette memory management scheme is provided to maintain current data and avoid overwriting of valid data when motion compensation commands are pipelined.

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